

I CLAIM:

1. A dual beam laser aiming module for a firearm comprising:
a dual-laser alignment housing having a first cavity and a second cavity formed therein;
a first laser assembly that is fixed in the first cavity and that has a first beam axis;
a second laser assembly that has a second beam axis and that is adjustably located in the second cavity to provide the second beam axis parallel to the first beam axis;
a laser housing adapted to be fixed to the firearm and having a cavity formed therein for receiving the dual-laser alignment housing;
wherein the dual-laser alignment housing has a rounded exterior surface that interfaces with a corresponding rounded surface in the interior of the cavity of the laser housing; and
adjustment means for adjustably pivoting the dual-laser alignment housing with respect to the laser housing to align the parallel first and second axes further in parallel to a centerline of a barrel of the firearm.
2. The dual beam laser aiming module of Claim 1 wherein the first laser assembly provides an infrared (IR) beam.
3. The dual beam laser aiming module of Claim 1 wherein the second laser assembly provides a visible beam.
4. The dual beam laser aiming module of Claim 1 wherein the adjustment means includes a four-point laser alignment mechanism for adjustably pivoting the dual-laser

alignment housing with respect to the laser housing to align the parallel first and second axes parallel to the centerline of the barrel of the firearm.

5. The dual beam laser aiming module of Claim 4 wherein the four-point laser alignment mechanism includes:

a first adjustment screw, an end of which contacts the dual-laser alignment housing and which is aligned for movement in a first direction perpendicular to the centerline of the gun barrel;

a second adjustment screw, an end of which contacts the dual-laser alignment housing and which is aligned for movement in a second perpendicular to the CENTERLNE of the gun barrel and orthogonal to the first direction of the first adjustment screw; and

two spring-loaded bushings that bias the dual-laser alignment housing against a respective end of the first and the second adjustment screws.

6. The dual-beam laser aiming module of Claim 5 wherein the dual-laser alignment housing has an external step in which fits an O-ring such that unthreaded side surfaces near the ends of the first and second adjustment screws and side surfaces of the spring-loaded bushings all contact and compress the O-ring to stabilize the position of the dual-laser alignment housing and to attenuate longitudinal movement of the dual-beam alignment housing in the direction of the beam axes.

7. The dual beam laser aiming module of Claim 1 wherein the first laser assembly is press-fit into the first cavity; and

wherein the second laser assembly is adjusted to a fixed position in the second cavity with an adhesive material such that the axis of the second beam is fixed to be parallel to the axis of the first beam.

8. The dual beam laser aiming module of Claim 1 wherein the dual-laser alignment housing has a rounded exterior surface that interfaces with a corresponding rounded surface in the interior of the cavity of the laser housing.

9. The dual beam laser aiming module of Claim 1 wherein the laser housing includes a LED IR illuminator adapted for use with night vision goggles.

10. The dual beam laser aiming module of Claim 1 including a toggle switch mounted to the laser housing for selecting exclusive operation of either the first laser assembly or of the second laser assembly.

11. The dual beam laser aiming module of Claim 1 wherein the laser housing is adapted to be attached to the barrel of a particular firearm with a corresponding mounting base for the laser housing.

12. The dual beam laser aiming module of Claim 1 wherein the laser housing has a tactical flashlight assembly mounted thereto to provide a multi-operational laser aiming module having both laser and flashlight capabilities.

13. The dual beam laser aiming module of Claim 12 including a rotary switch mounted to the laser housing for selecting operation selected from the group consisting of: no operation, a tactical light only, the tactical light and a laser only, and a laser only.

14. A dual beam laser aiming module for a firearm comprising:
a dual-laser alignment housing having a first cavity and a second cavity formed therein;
a first laser assembly that is fixed in the first cavity and that has a first infrared (IR) beam with a first beam axis;

a second laser assembly that has a second visible beam with a second beam axis and that is adjustably located in the second cavity to provide the second beam axis parallel to the first beam axis;

a laser housing adapted to be fixed to the firearm and having a cavity formed therein for receiving the dual-laser alignment housing;

wherein the dual-laser alignment housing has a rounded exterior surface that interfaces with a corresponding rounded surface in the interior of the cavity of the laser housing;

a four-point laser alignment mechanism for adjustably pivoting the dual-laser alignment housing with respect to the laser housing to align the parallel first and second axes parallel to the centerline of the barrel of the firearm.

15. The dual beam laser aiming module of Claim 14 wherein the four-point laser alignment mechanism includes:

a first adjustment screw, an end of which contacts the dual-laser alignment housing and which is aligned for movement in a first direction perpendicular to the centerline of the gun barrel;

a second adjustment screw, an end of which contacts the dual-laser alignment housing and which is aligned for movement in a second perpendicular to the CENTERLINE of the gun barrel and orthogonal to the first direction of the first adjustment screw; and

two spring-loaded bushings that bias the dual-laser alignment housing against a respective end of the first and the second adjustment screws.

16. The dual-beam laser aiming module of Claim 14 wherein the dual-laser alignment housing has an external step in which fits an O-ring such that unthreaded and wherein respective unthreaded side surfaces near the ends of the first and second adjustment screws and side surfaces of the spring-loaded bushings all contact and compress the O-ring to stabilize the position of the dual-laser alignment housing and to

attenuate longitudinal movement of the dual-beam alignment housing in the direction of the beam axes.

17. The dual beam laser aiming module of Claim 14 wherein the first IR laser assembly is press-fit into the first cavity; and

wherein the second visible laser assembly is adjusted to a fixed position in the second cavity with an adhesive material such that the axis of the second beam is fixed to be parallel to the axis of the first beam.

18. The dual beam laser aiming module of Claim 14 wherein the dual-laser alignment housing has a rounded exterior surface that interfaces with a corresponding rounded surface in the interior of the cavity of the laser housing.

19. The dual beam laser aiming module of Claim 14 wherein the laser housing includes a LED IR illuminator adapted for use with night vision goggles.

20. The dual beam laser aiming module of Claim 14 including a toggle switch mounted to the laser housing for selecting exclusive operation of either the first laser assembly or of the second laser assembly.

21. The dual beam laser aiming module of Claim 14 wherein the laser housing is adapted to be attached to the barrel of a particular firearm with a corresponding mounting base for the laser housing.

22. The dual beam laser aiming module of Claim 14 wherein the laser housing has a tactical flashlight assembly mounted thereto to provide a multi-operational laser aiming module having both laser and flashlight capabilities.

23. The dual beam laser aiming module of Claim 22 including a rotary switch mounted to the laser housing for selecting operation selected from the group consisting of: no operation, the a|tactical light only, the tactical light and a laser only, a laser only.

24. A method of aiming a firearm comprising the steps of:

providing a dual-laser alignment housing having a first cavity and a second cavity formed therein;

fixing a first laser assembly that has a first beam axis in the first cavity;

adjusting and fixing a second laser assembly that has a second beam axis in the second cavity and providing the second beam axis parallel to the first beam axis;

providing a cavity in a laser housing for receiving the dual-laser alignment housing and adapting the laser housing to be fixed to the firearm;

providing the dual-laser alignment housing with a rounded exterior surface and interfacing that rounded exterior surface with a corresponding rounded surface in the interior of the cavity of the laser housing; and

adjustably pivoting the dual-laser alignment housing with respect to the laser housing for aligning the parallel first and second axes further in parallel to a centerline of a barrel of the firearm.

24. The method of Claim 24 wherein the first laser assembly provides an infrared (IR) beam.

25. The method of Claim 24 wherein second laser assembly provides a visible beam.

26. The method of Claim 24 wherein the step of adjusting and fixing the second laser assembly that has a second beam axis in the second cavity and providing the second beam axis parallel to the first beam axis includes adjustably pivoting the dual-laser alignment housing with respect to the laser housing and aligning the parallel first

and second axes parallel to the centerline of the barrel of the firearm with a four-point laser alignment mechanism.

27. The method of Claim 24 wherein step of adjustably pivoting the dual-laser alignment housing with respect to the laser housing and aligning the parallel first and second axes parallel to the centerline of the barrel of the firearm with a four-point laser alignment mechanism includes:

contacting the dual-laser alignment housing with an end of a first adjustment screw, an end of which contacts the dual-laser alignment housing and which is aligned for movement in a first direction perpendicular to the centerline of the gun barrel;

contacting the dual-laser alignment housing with an end of a second adjustment screw, an end of which contacts the dual-laser alignment housing and which is aligned for movement in a second perpendicular to the centerline of the gun barrel and orthogonal to the first direction of the first adjustment screw; and

biasing the dual-laser alignment housing against a respective end of the first and the second adjustment screws with two respective spring-loaded bushings.

28. the method of Claim 27 including the step of fitting an O-ring to an external step in which fits an O-ring, contacting the O-ring with respective unthreaded side surfaces near the ends of the first and second adjustment screws and side surfaces of the spring-loaded bushings, and compressing the O-ring to stabilize the position of the dual-laser alignment housing in order to attenuate longitudinal movement of the dual-beam alignment housing in the direction of the beam axes.

29. The method of Claim 24 including press-fitting the first laser assembly into the first cavity; and

adjusting and fixing the second laser assembly to a fixed position in the second cavity with an adhesive material such that the axis of the second beam is fixed to be parallel to the axis of the first beam.

30. The method of Claim 24 including interfacing a rounded exterior surface of the dual-laser alignment housing with a corresponding rounded surface in the interior of the cavity of the laser housing.

31. The method of Claim 24 including illuminating an area with a LED IR illuminator adapted for use with night vision goggles.

32. The method of Claim 24 including exclusively operating either the first laser assembly or the second laser assembly with a toggle switch mounted to the laser housing.

33. The method of Claim 24 including the step of attaching the barrel of a particular firearm with a corresponding mounting base for the laser housing.

34. The method of Claim 24 including the step of mounting a tactical flashlight to the laser housing to provide a multi-operational laser aiming module having both laser and flashlight capabilities.

35. The method of Claim 34 including selecting with a rotary switch mounted to the laser housing an operation selected from the group consisting of: no operation, a tactical light only, the tactical light and a laser only, and a laser only.